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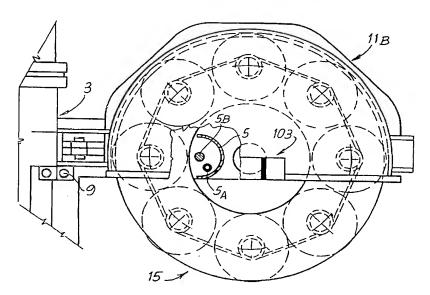
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(54) Title: PLANT FOR VACUUM COATING OF OBJECTS TREATED IN BATCHES



(57) Abstract: A plant for vacuum metallization of objects treated in batches is described, said plant comprising: a vacuum chamber; at least one carousel (15) which rotates about an axis of rotation (A-A) and which is arranged inside said vacuum chamber when the plant is in operation; at least one discharge electrode (5B); at least one diffuser (5A) associated with said discharge electrode for introduction of at least one protective substance for metallization. The discharge electrode (5B) and the diffuser (5A) are associated with a housing arranged inside said vacuum chamber, in an approximately central position, said housing enclosing at least partly said diffuser and said electrode.

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A. CLASSIF IPC 7	C23C14/50 C23C16/50 C23C16/45	58							
According to	International Patent Classification (IPC) or to both national classification	ion and IPC							
B. FIELDS SEARCHED									
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EPO-In	ternal, WPI Data, PAJ								
C. DOCUME	ENTS CONSIDERED TO BE RELEVANT								
Category *	Citation of document, with indication, where appropriate, of the rele	vant passages	Relevant to claim No.						
χ	US 5 656 141 A (BETZ HANS-GEORG	ET AL)	1-3,19,						
	12 August 1997 (1997-08-12)		21						
	column 3, line 3 - line 22; figur	e							
A	US 4 956 196 A (WAGNER WOLFGANG	ET AL)	1-24						
<u></u>	11 September 1990 (1990-09-11)	,							
	column 2, line 12 - line 57; figu	res 1,2							
		Δ1.)	1-24						
A	US 5 970 908 A (GLANZ RICHARD ET AL) 1-24 26 October 1999 (1999-10-26)								
	cited in the application								
Ì	column 3, line 52 -column 5, line 67								
İ									
l									
Furl	ther documents are listed in the continuation of box C.	Patent family members are listed	in annex.						
• Special ca	ategories of cited documents:	*T* later document published after the inte or priority date and not in conflict with	rnational filing date						
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INTERNATIONAL SEARCH REPORT

PCT/11 03/00413

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
US 5656141	A	12-08-1997	DE DE DE EP ES JP JP	4020158 A1 4026367 A1 59007942 D1 0463230 A1 2064593 T3 4235276 A 3431174 B2 4232264 A	02-01-1992 12-03-1992 19-01-1995 02-01-1992 01-02-1995 24-08-1992 28-07-2003 20-08-1992
US 4956196	Α	11-09-1990	DE	3731686 A1	06-04-1989
us 5970908	Α	26-10-1999	NONE		

Form PCT/ISA/210 (patent family annex) (July 1992)